

REMARKS

Claims remaining in the present patent application are numbered 1-29. Claims 1, 13, 19, and 25 have been amended herein. The rejections and comments of the Examiner set forth in the Office Action dated January 24, 2006 have been carefully considered by the Applicants. Applicants respectfully request the Examiner to consider and allow the remaining claims.

Claim Objections

The present Office Action objected to Claim 25 as being a substantial duplicate thereof of independent Claim 1. Applicants respectfully assert that the limitations of independent Claim 25 are distinct from the limitations of independent Claim 1. Specifically, independent Claim 25 recites a "pixel border" that is controlled uniformly between an on and off state by a constant and common threshold signal. On the other hand, independent Claim 1 recites a "permanent pixel border" the is controlled uniformly between an on and off state by a constant and common threshold signal. Applicants respectfully assert that the "permanent" pixel border of independent Claim 1 is distinct over the more broader "pixel border" of independent Claim 25. As such, Applicants respectfully assert that objections to independent Claim 25 as being a substantial duplicate thereof of

independent Claim 1 is unwarranted. Applicants respectfully request reconsideration of independent Claim 25.

§112 Rejection

The present Office Action rejected Claims 1-29 under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

More particularly, the present Office Action objected to the claim limitation "n rows" and "m columns" in claims 1, 13, and 25. Applicants have amended Claims 1, 13, and 25 to refer to a passive matrix comprising "rows and columns." As such, Applicants respectfully assert that the objections for the use of the terms "n rows" and "m columns" have been overcome. Applicants respectfully request further examination of Claims 1, 13, and 25.

Additionally, the present Office Action objected to the claim limitation of "a fixed pixel border" in claims 1, 13, and 19, and "a pixel border" in claim 25 in combination with the text "having a predetermined width" because it is unclear whether one pixel or a plurality of pixels have a predetermined width or whether this limitation is part of the

claimed invention. Applicants have herein amended Claims 1, 13, and 19 to further illustrate the pixel border. Claims 1, 13, and 19 now recite that a permanent pixel border surrounds the passive matrix and comprises a fixed number of pixels that are dedicated to the permanent pixel border. As such, Applicants respectfully assert that the objections for the use of terms "a fixed pixel border" and "a pixel border" have been overcome. Applicants respectfully request further review of Claims 1, 13, and 19.

35 U.S.C. §103 Rejection

The present Office Action rejected Claims 1-5, 8, 13-16, 19-23, 25, 26, 28, and 29 under 35 U.S.C. 103(a) as being unpatentable over the Taniguchi reference (U.S. Patent No. 4,824,212) in view of Yokota et al. (U.S. Patent No. 6,181,313). Applicants have reviewed the above cited references and respectfully submit that the present invention as described in embodiments of independent Claims 1, 13, 19, and 25, is neither anticipated nor rendered obvious by the Taniguchi reference taken alone or in combination with the Yokota et al. reference.

Independent Claims 1, 13, 19, and 25

Applicants respectfully point out that the present invention as described in embodiments of independent Claims 1, 13, 19, and 25 describe a controllable pixel border for a

negative mode passive matrix display device. In particular, the present invention as described in embodiments of independent Claims 1 and 19 include, in part:

a permanent pixel border arranged in rows and columns surrounding said passive matrix and comprising a fixed number of a plurality of pixels dedicated to said permanent pixel border, each of said plurality of pixels uniformly controlled between an on and an off state as applied to each pixel by a constant and common threshold signal, wherein said constant and common threshold signal is driven by constant and common voltages for said rows and said columns in said fixed pixel border for each state. (Emphasis Added)

In addition, Applicants respectfully point out that the present invention as described in an embodiment of independent Claim 13 includes, in part:

a permanent pixel border arranged in rows and columns surrounding said passive matrix and comprising a fixed number of a plurality of pixels dedicated to said permanent pixel border, each of said plurality of pixels uniformly controlled between an on and an off state as applied to each pixel by a constant and common threshold signal generated from a constant and common row threshold voltage and a constant and common column threshold voltage (Emphasis Added)

Moreover, Applicants respectfully point out that the present invention as described in embodiments of independent Claim 25 includes, in part:

a pixel border surrounding said passive matrix and comprising a plurality of pixels each of which is uniformly controlled between an on and an off state as applied to each pixel by a constant and

common threshold signal, wherein said constant and common threshold signal is driven by constant and common voltages for said rows and said columns in said fixed pixel border for each state.

Embodiments of the present invention as recited in independent Claims 1, 13, 19, and 25 pertain to a controllable pixel border for a negative mode passive matrix display device. In particular, the present invention as described in embodiments of independent Claims 1, 13, 19, and 25 recites that a pixel border, permanent or otherwise, surrounds the passive matrix is uniformly controlled as applied to each pixel by a constant and common threshold signal.

Applicants respectfully agree that it is conceded that the Taniguchi reference does not teach the limitations of a plurality of pixels which is uniformly controlled between an on and an off state by a common threshold signal, as is recited in independent Claims 1, 13, 19, and 25 of the present invention.

Moreover, Applicants respectfully note that the prior art reference, Yokota et al. fails to overcome the shortcomings of the Taniguchi reference. That is, the Yokota et al. reference also fails to teach or suggest the present display unit that comprises, in particular, the pixel border, permanent or otherwise, surrounding a passive matrix, wherein the pixel border is uniformly controlled between an on and

off state as applied to each pixel by a constant and common threshold signal, as claimed in independent Claims 1, 13, 19, and 25 of the present invention.

In particular, in contrast to independent Claims 1, 13, 19, and 25 of the present invention, the Yokota et al. reference discloses a liquid display controller that selects rows of a liquid crystal panel, such that the display is selectively produced on a portion of the liquid crystal display panel at a low voltage with a low-duty drive. Specifically, the Yokota et al. reference teaches the non-display rows are driven on an "alternating current of the non-selection level." (See col. 8, lines 19-25 of the Yokota et al. reference). Thus, the Yokota et al. reference describes an AC driving method providing alternating voltage levels to drive the on and off state of pixels. Further description of the AC drive is provided with respect to Figures 14(k) and 14(l) in which a dot at the intersecting point of ECOM2 and ESEG2 is shown in an "on" state for the duration of two frames where the driving voltages of the selection level and the non-selection level are inverted, or alternating between the two frames. (See col. 14, lines 43-64 of the Yokota et al. reference).

On the other hand, embodiments of the present invention describe a display unit that has distinct display and border regions. In particular, the present invention also discloses

a separate pixel border that surrounds the passive matrix that is uniformly controlled between an on and off state by a constant and common threshold signal, as recited in independent Claims 1, 13, 19, and 25 of the present invention.

Figure 9 of the present Application describes the application of the constant and common threshold signal to control the pixels in the fixed pixel border. The common threshold signal is defined as the voltage difference between threshold voltage drivers 430a and 430b in their on or off states. In particular, the threshold voltage (V2) of the constant and common threshold signal is commonly applied to each of the pixels of the fixed pixel border in the "on" state, and the threshold voltage (V1) of the constant and common threshold signal is commonly applied to each of the pixels of the fixed pixel border in the "off" state.

In particular, independent Claims 1 and 19 recite that each of the pixels in the permanent pixel border are uniformly controlled between an on and off state as applied to each pixel by a constant and common threshold signal. The constant and common threshold signal is driven by constant and common voltages for the rows and columns of the permanent pixel border for the each of the on and off states. As such, neither the Taniguchi et al., which does not address a common threshold signal, nor the Yokota et al. reference which

teaches that alternating voltages of an AC drive drives the on and off state of pixels does not teach the uniform control of the pixels in the pixel border with the application of a constant and common threshold signal, as is recited in independent Claims 1 and 19.

Moreover, independent Claim 13 recites that each of the plurality of pixels is uniformly controlled between an on and an off state as applied to each pixel by a constant and common threshold signal that is generated from a constant and common row threshold voltage and a constant and common column threshold voltage. That is, the threshold voltage drivers for the rows and columns generate the constant and common row threshold voltages and the constant and common column threshold voltage that are used to generate the constant and common threshold signal, as applied to each of the pixels in the pixel border region. Neither the Taniguchi et al. nor the Yokota et al. references teach the use of the constant and common row and column threshold voltages to generate the constant and common threshold signal that is applied to each of the pixels in the fixed border region, as is recited in independent Claim 13.

Additionally, independent Claim 25 recites that a pixel border surrounding a passive matrix comprises pixels that are each uniformly controlled between an on and off state as applied to each pixel by a constant and common threshold

signal. That is, the pixels in the pixel border are driven by constant and common voltages for the rows and columns in the pixel border for each state. Neither the Taniguchi et al. nor the Yokota et al. references teach the use of a constant and common threshold signal to drive the on and off states of pixels in the pixel border, as is recited in independent Claim 25 of the present invention.

Thus, Applicants respectfully submit that the present invention as disclosed in independent Claims 1, 13, 19, and 25 is not anticipated or rendered obvious by the Taniguchi taken alone or in combination with the Yokota et al. reference, and is in a condition for allowance. In addition, Applicants respectfully submit that Claims 2-12 which depend from independent Claim 1 are also in a condition for allowance as being dependent on an allowable base claim. Also, Applicants respectfully submit that Claims 14-18 which depend from independent Claim 13 are also in a condition for allowance as being dependent on an allowable base claim. Further, Applicants respectfully submit that Claims 20-24 which depend from independent Claim 19 are also in a condition for allowance as being dependent on an allowable base claim. Additionally, Applicants respectfully submit that Claims 26-29 which depend from independent Claim 25 are also in a condition for allowance as being dependent on an allowable base claim.

CONCLUSION

In light of the facts and arguments presented herein, Applicants respectfully request reconsideration of the rejected Claims.

Based on the arguments presented above, Applicants respectfully assert that Claims 1-29 overcome the rejections of record. Therefore, Applicants respectfully solicit allowance of these Claims.

The Examiner is invited to contact Applicants' undersigned representative if the Examiner believes such action would expedite resolution of the present Application.

Respectfully submitted,

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